

## **REMARKS**

This application is a U.S. National Phase filing under 35 U.S.C. § 371, claiming priority from International Application No. PCT/FR99/00748, filed on March 31, 1999, and French Patent Application No. 98.04401, filed on April 3, 1998. Claims 1-23 were originally filed with the application; claims 12, 22 and 23 were canceled, and new claims 24-28 were added by a preliminary amendment filed with the application. In response to a restriction requirement, the invention of group I, claims 1-11 was elected, and the inventions of Groups II, III and IV, claims 13-28 have been withdrawn from consideration. Therefore, claims 1-11 are currently pending.

### **Objections**

The Office action states that the drawings and the abstract are objected to. It is believed that the amendments to the drawing and abstract submitted with the response filed on 13 September 2002 have already overcome these objections, as the Office action mailed on 6 November 2002 states that the "objections and rejections under 35 USC §112 have been withdrawn in view of Applicants' amendment" (page 4, second paragraph).

### **Rejections Under 35 U.S.C. § 103**

Claims 1-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,616,532 (Heller), in view of WO 97/00134 (Kimura). The rejection is traversed.

Claim 1 is now amended to limit the diameter of the silica particles to "between 20 and 30 nm". Support for the amendment may be found on page 5, lines 30-31, of the specification, and in the SNOWTEX 50 (ST-50) used in the examples. Claim 1 as amended is novel over the Kimura reference which uses, in reference example 1 (Table 1, columns 21 and 22), Cataloid SI-30 having a specific surface of 180m<sup>2</sup>/g but a silica particle size of 10-14 nm. (See attached literature for ST-50 and SI-30).

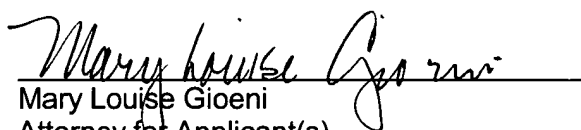
Heller discloses a photocatalyst composition containing a non-oxidizable binder (abstract); silica is listed as a useful binder (col. 3. line 43). The Office action states on page 3, last paragraph, that "Heller fails to disclose silica particles having a surface area greater than 80 m<sup>2</sup>/g." Applicants agree. However, on page 5, last paragraph, the Office action states, "It is argued that Heller discloses a photocatalyst composition. . . [sic] claimed surface area. This is not persuasive because Heller discloses inorganic binders (see column 3, lines 40-43 and column 6, lines 11-13)". With respect, applicants submit that the text in column 3, lines 40-43

and column 6, lines 11-13 merely contains a list of binder compositions, and is completely silent regarding specific surface area thereof. While the patent does specify surface per gram for the *photocatalyst*, there is no mention of specific surface area of any of the *binders* in the Heller patent.

The Office action proposes to supply the deficiency of Heller with the Kimura reference, stating on page 4, first paragraph that "Kimura '480 discloses silica of 180 m<sup>2</sup>/g", and concludes that "it would have been obvious to use the silica of Kimura in the photocatalyst of Heller". However, although Kimura does present an example (reference example 1, Table 1) wherein the photocatalyst is bound to the substrate by a silica of the claimed specific surface area, the particle size thereof falls outside the range now claimed. In reference example 1, Cataloid SI-30 is used as the only binder for the photocatalyst; and specific surface area thereof is listed 180 m<sup>2</sup>/g. However, it has now been discovered that the particle size of this material is only 10-14 nm, as shown in the attached product literature for the Cataloid series, whereas claim 1 as amended limits the particle size of the silica binder to 20-30 nm. Since the Cataloid SI-30 utilized by Kimura does not meet the requirements of the claims for particle size of the binder, applicants submit that Heller cannot be properly combined with Kimura to support an obviousness rejection. It should also be noted that using a silica binder of the claimed particle size 20-30 nm) unexpectedly provides a means for adhering the photocatalyst to the substrate. This is particularly significant when compared to the results reported by Kimura in reference example 1, where, for a photocatalyst layer containing only Cataloid SI-30 (10-14 nm) as a binder, adhesion was very poor ("the photocatalyst layer has no sticking property and is easily defoliated" (col. 21, lines 32-33)). Based on the above considerations, it is believed that the rejection is hereby overcome.

***Respectfully submitted,***

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ATTACHMENTS: Cataloid-S and Snowtex ST-50 literature